

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
7 July 2005 (07.07.2005)

PCT

(10) International Publication Number  
**WO 2005/060570 A2**

(51) International Patent Classification: Not classified

(21) International Application Number:  
PCT/US2004/040612

(22) International Filing Date: 3 December 2004 (03.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/528,572 10 December 2003 (10.12.2003) US  
60/532,207 22 December 2003 (22.12.2003) US  
60/585,447 2 July 2004 (02.07.2004) US

(71) Applicant and

(72) Inventor: DE LA CRUZ, Moises [US/US]; 7895 South  
68th Street Court, Cottage Grove, MN 55016 (US).

(74) Agents: BOHN, David, C. et al.; Westman, Champlin &  
Kelly, P.A., Suite 1600 - International Centre, 900 Second  
Avenue South, Minneapolis, MN 55402-3319 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

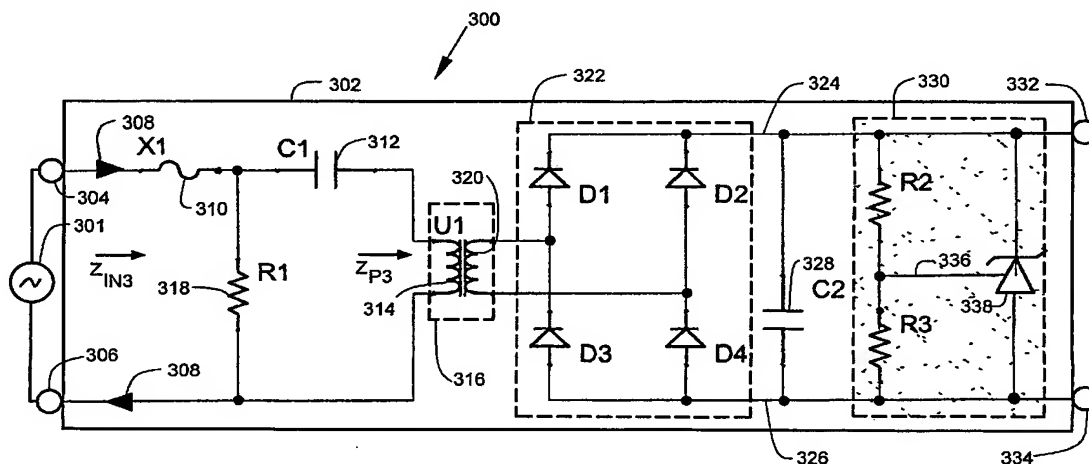
— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— without international search report and to be republished  
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: AC TO DC CONVERTER CIRCUIT



(57) Abstract: An AC to DC converter circuit (300) includes a transformer (316) having primary (314) and secondary (320) windings, a rectifier bridge (322) coupled to the secondary winding, a DC filter capacitor (328) coupled to the rectifier bridge, a voltage regulator (330) coupled to the DC filter capacitor and to DC output contacts (332, 334). The converter circuit includes an AC reactance (312) coupled in a series circuit with the primary winding and AC input contacts (304, 306). The AC reactance limits AC excitation voltage at the primary winding to less than the AC line voltage.